

What is claimed is:

1. A well drilling and servicing fluid which can be continuously circulated in a borehole comprising an aqueous liquid, a polymer which increases the low shear rate viscosity of the fluid to the extent that the thixotropic index of the fluid is at least 10, a surfactant, and aphrons which are generated by the encapsulation of gas in the fluid by a thin aqueous surfactant-containing shell wherein the surfactant molecules are so positioned that they produce an effective barrier against coalescence with adjacent aphrons, the fluid containing less than about 15% by volume of aphrons.

2. The well drilling and servicing fluid of Claim 1 wherein the polymer is a biopolymer.

3. The well drilling and servicing fluid of Claim 1 or 2 wherein the surfactant provides an average percent expansion of a sand bed of the least about 50% when evaluated according to the following test procedure: to a low temperature, low pressure API filtration cell (API Recommended Practice 13 B-1), the cylindrical body of which is made from Plexiglass of thickness 0.5 inch (1.3 centimeters) is added 200 grams of sand having a particle size in the range from 50 mesh to 70 mesh (297 μ m to 210 μ m); this provides a sand bed depth of 2.1 centimeters; no filter paper is used in the cell; 350 cc of the fluid to be tested is slowly added to the cell, the cell assembled, and 100 psi nitrogen pressure applied; the pressure is released after the nitrogen blows through the bed for 30 seconds so as to form bubbles; upon releasing the pressure the sand bed will expand in volume/height as the bubbles in the sand bed expand; the expansion is not even, and an average increase in height of the bed as measured at the cell wall

and an at the center of the sand bed is obtained; wherein the test fluid comprises 4.285 kg/m³ of well hydrated xanthan gum in water and 2.857 kg/m³ of the surfactant to be tested, wherein the surfactant is dispersed in the xanthan gum dispersion by very low shear mixing to prevent the formation of a foam.

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4. A recirculateable drilling fluid, comprising:

an aqueous liquid:

a viscosifier that increases the low shear rate viscosity of the fluid to the extent that the shear thinning index of the fluid is at least 10;

a surfactant; and

aphrons, wherein the aphrons comprise less than about 15% by volume of the fluid.

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5. A recirculateable drilling fluid according to claim 4 wherein the aphrons comprise 11% by volume of the fluid.

6. A recirculateable servicing fluid, comprising:

an aqueous liquid:

a viscosifier that increases the low shear rate viscosity of the fluid to the extent that the shear thinning index of the fluid is at least 10;

a surfactant; and

aphrons, wherein the aphrons comprise less than about 15% by volume of the fluid.

7. A recirculateable servicing fluid according to claim 6 wherein the aphrons comprise 11% by volume of the fluid.

SUB 23/ 8. The drilling or servicing fluid according to claims 4 or 6 wherein the aphrons comprise less than about 6.5% by volume of the fluid.

9. The drilling or servicing fluid according to claims 4 or 6 wherein the aphrons are generated by encapsulation of gas in the fluid by a thin aqueous surfactant-containing shell wherein the surfactant molecules are so positioned that they produce an effective barrier against coalescence with adjacent aphrons.

SUB 24/ 10. The drilling or servicing fluid according to claims 4 or 6 wherein the fluid has a low shear rate viscosity of at least 10,000 centipoise.

15 11. The drilling or servicing fluid of claims 4 or 6 wherein the viscosifier is a polymer.

12. The drilling or servicing fluid of claim 11 wherein the polymer is a polysaccharide.

13. The drilling or servicing fluid of claim 11 wherein the polymer is a biopolymer.

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SUB 25/ 14. A drilling fluid, comprising:
an aqueous liquid:

a viscosifier;
a surfactant; and
aphrons.

5 15. A drilling fluid according to claim 14 wherein the viscosifier increases the low shear rate viscosity of the fluid to the extent that the shear thinning index of the fluid is at least 10.

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16. A servicing fluid, comprising:
an aqueous liquid:
a viscosifier;
a surfactant; and
aphrons.

15 17. A servicing fluid according to claim 16 wherein the viscosifier increases the low shear rate viscosity of the fluid to the extent that the shear thinning index of the fluid is at least 10.

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18. The drilling or servicing fluid according to claims 14 or 16 wherein the aphrons comprise less than about 15% by volume of the fluid.

20 19. The drilling or servicing fluid according to claims 14 or 16 wherein the aphrons comprise less than about 11% by volume of the fluid.

20. The drilling or servicing fluid according to claims 14 or 16 wherein the aphrons comprise less than about 6.5% by volume of the fluid.

21. The drilling or servicing fluid of claims 14 or 16 wherein the viscosifier is a polymer.

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